



# **Economic Impacts of Grand Canyon River Runners and the 2000 LSSF of the Colorado River**

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# Two studies

- **Regional Economic Impacts of Grand Canyon River Runners**

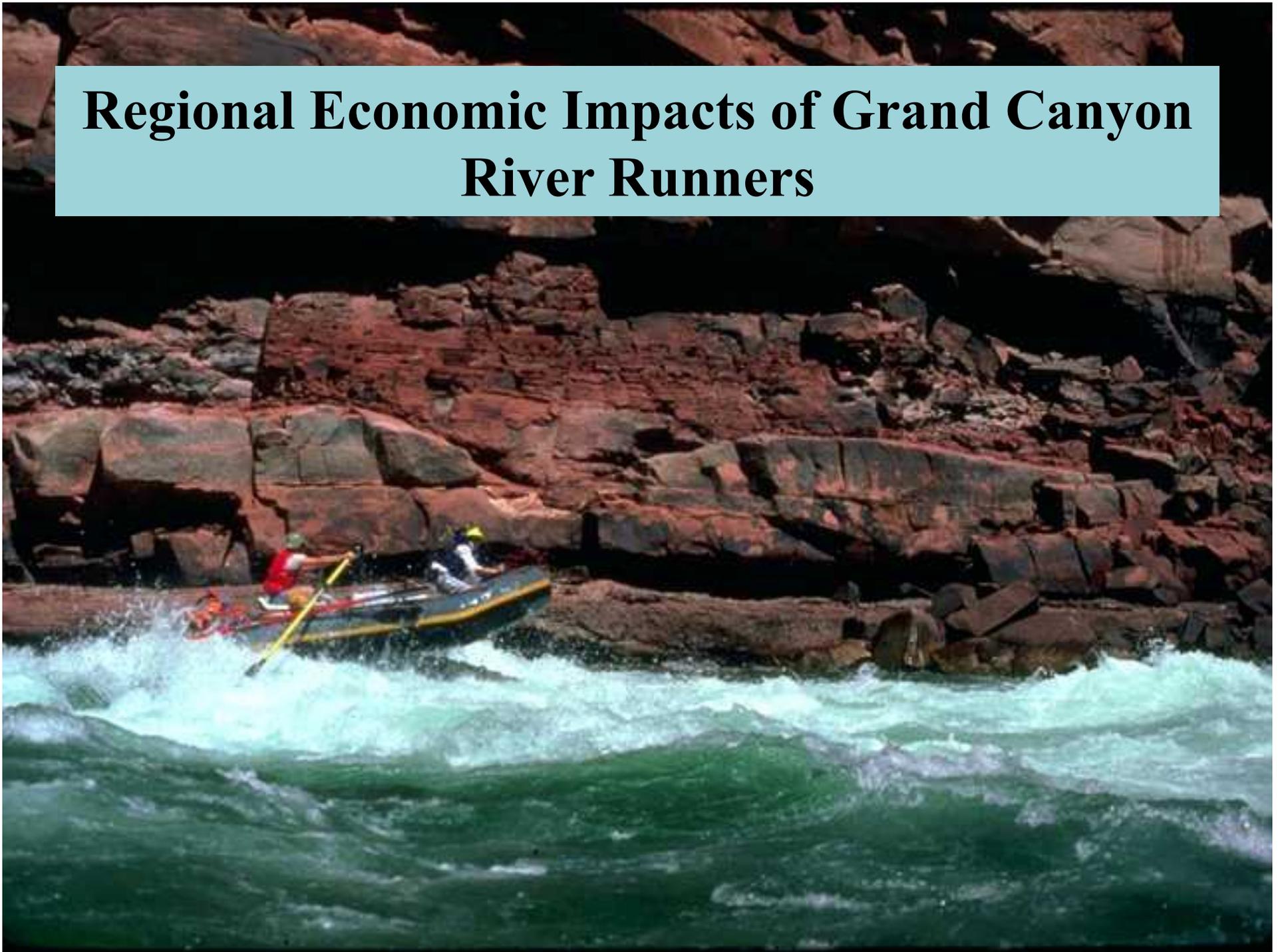
Hjerpe, E.E. and Y. Kim (2007). Regional economic impacts of Grand Canyon river runners. *Journal of Environmental Management* 85 (2007) 137–149

- **Economic impacts of the 2000 LSSF of the Colorado River**

Hjerpe, E.E. and Y. Kim. “Economic Impacts of the Low Summer Steady Flows of the Colorado River to Private Whitewater Boaters and Anglers and River Concessionaires,” 2001. *Technical Report for Grand Canyon Monitoring and Research Center*, 21 pages. Flagstaff, AZ.

[http://www.gcmrc.gov/library/reports/cultural/Recreation/LSSF\\_Report.pdf](http://www.gcmrc.gov/library/reports/cultural/Recreation/LSSF_Report.pdf)

# Regional Economic Impacts of Grand Canyon River Runners



# The objective was:

- To estimate the regional economic impacts of Grand Canyon boaters (commercial and non-commercial boating expenditures).

# Methods



# Data Collection

- Regional expenditures by commercial rafters were obtained by surveying the 16 licensed concessionaires.
- For non-commercial rafting expenditures, all 2001 non-commercial trip leaders (254) were sent an expenditure survey.



# Regional Economic Impact Analysis with IMPLAN

**IMPLAN (Impact Analysis for Planning):** A database containing information of regional economies, and an economic modeling program that traces the flow of materials and services to estimates the economic impact of industries on the regional economy. The IMPLAN data files include information for 520 (now 450) different industries and 21 different economic variables.

This “Grand Canyon” economic region: Coconino County, Arizona, and the two bordering towns of Peach Springs, AZ (Mohave County) and Kanab, UT (Kane County).

Trip expenditures were allocated to: rafting fees, gas and oil, transportation, grocery, restaurant, personal gear, lodging, boat gear, equipment rentals, miscellaneous retail, and other.

# Results



# Commercial Sector

- Total number of commercial rafters served in 2001 was 18,621.
- These boaters generated \$18.6 million of regional expenditures.
- Average regional expenditure of \$1,001 per commercial rafter



## Most affected industries by Grand Canyon regional commercial<sup>1</sup> rafting expenditures for 2001

Affected Industrial Sector	Regional Commercial Rafting Expenditures	Average Regional Expenditure Per Commercial Rafter
Amusement and Recreation Services	\$7,716,000	\$414
Federal, Non-military (NPS Franchise/Park Fees)	\$2,542,000	\$137
Eating and Drinking and Food Stores	\$1,826,000	\$98
Passenger Transportation	\$1,654,000	\$89
Miscellaneous Retail	\$1,621,000	\$87
<b>Total for all Sectors</b>	<b>\$18,640,000</b>	<b>\$1,001</b>

## Effects<sup>1</sup> and Multipliers of \$18.6 million of Regional Expenditures by Commercial Boaters

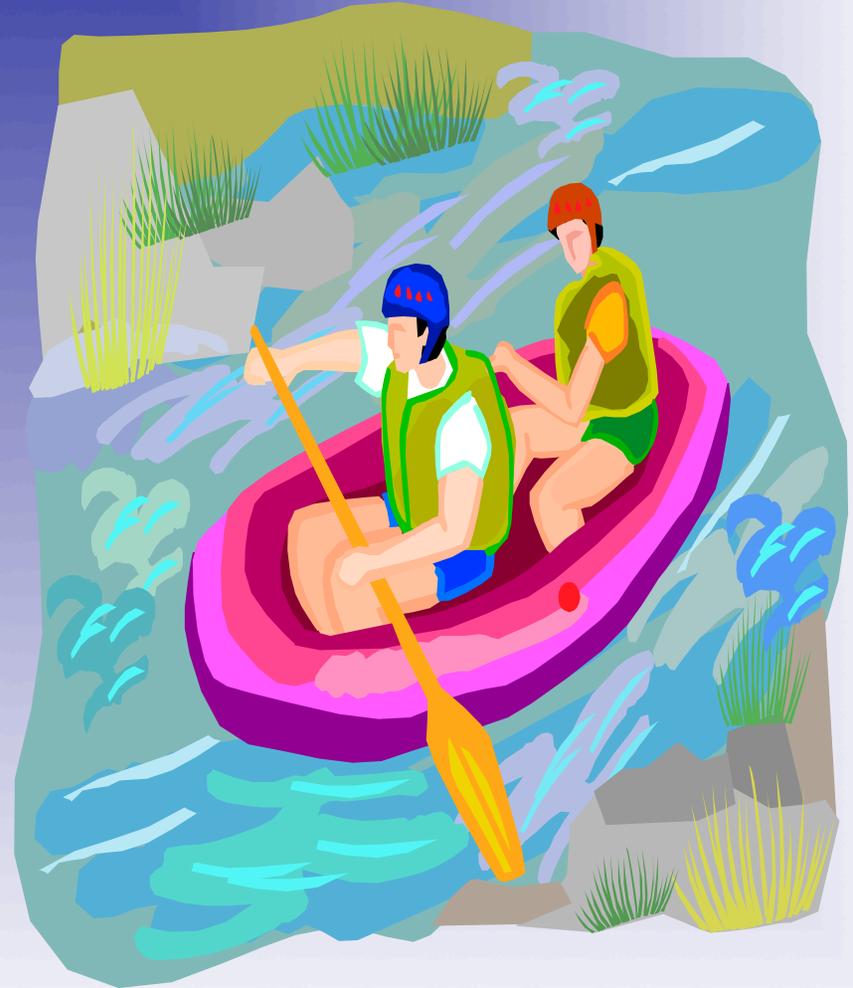
<b>Economic Impacts</b>	<b>Direct Effects</b>	<b>Indirect Effects</b>	<b>Induced Effects</b>	<b>Total Effects</b>	<b>Type SAM Multipliers</b>
Total Output (\$)	16,225,000	1,643,000	3,211,000	21,079,000	1.30
Total Employment (jobs)	283	23	51	357	1.26
Total Labor Income (\$) <sup>2</sup>	6,064,000	558,000	1,163,000	7,785,000	1.28

<sup>1</sup>Effects are presented in 1999 dollars.

<sup>2</sup>Total labor income includes employee compensation and proprietor income.

# Non-Commercial Sector

- A total of 3,620 people participated in non-commercial Grand Canyon river trips in 2001.
- Non-commercial boaters were responsible for \$2.5 million of regional expenditures
- Average regional expenditure of \$680 per non-commercial rafter



## Most affected industries by Grand Canyon regional<sup>1</sup> non-commercial rafting expenditures in 2001

Affected Industrial Sector	Regional Non-Commercial Rafting Expenditures	Average Regional Expenditure Per Non-Commercial Rafter
Eating and Drinking and Food Stores	\$795,000	\$221
Recreational Equipment	\$619,000	\$171
Federal, Non-Military (Park fees)	\$373,000	\$103
Arrangement of Passenger Transportation	\$194,000	\$54
Lodging	\$133,000	\$37
Other	\$346,000	\$94
<b>Total for all Sectors</b>	<b>\$2,460,000</b>	<b>\$680</b>

## Effects<sup>1</sup> and Multipliers of \$2.5 million of Regional Expenditures by Non-Commercial Boaters

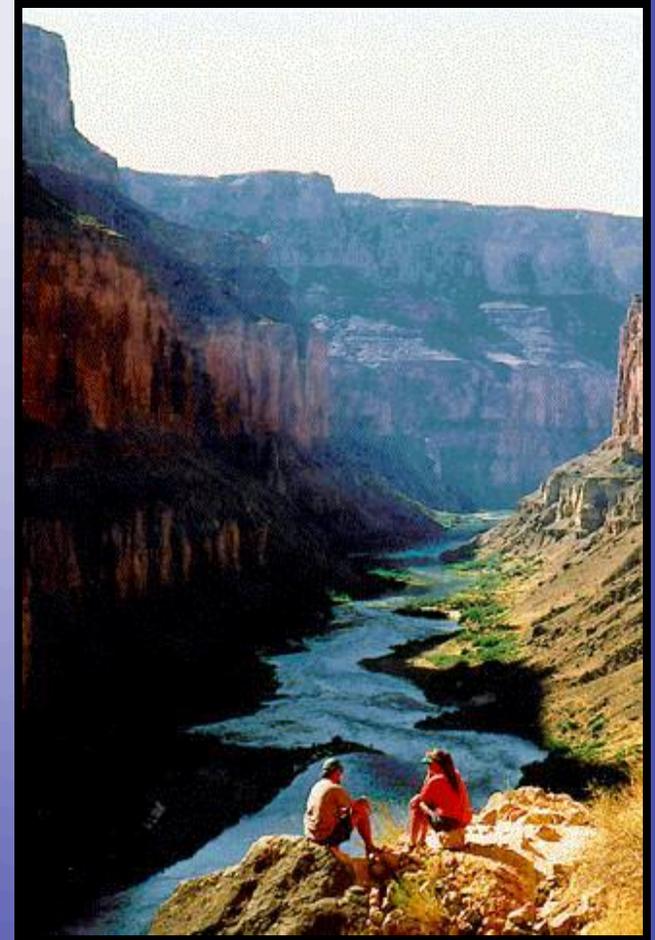
<b>Economic Impacts</b>	<b>Direct Effects</b>	<b>Indirect Effects</b>	<b>Induced Effects</b>	<b>Total Effects</b>	<b>Type SAM Multipliers</b>
Total Output (\$)	1,826,000	116,000	394,000	2,336,000	1.28
Total Employment (jobs)	29	2	6	37	1.28
Total Labor Income (\$)²	776,000	40,000	143,000	959,000	1.24

<sup>1</sup>Effects are presented in 1999 dollars.

<sup>2</sup>Total labor income includes employee compensation and proprietor income.

# Commercial and Non-commercial Sectors Combined

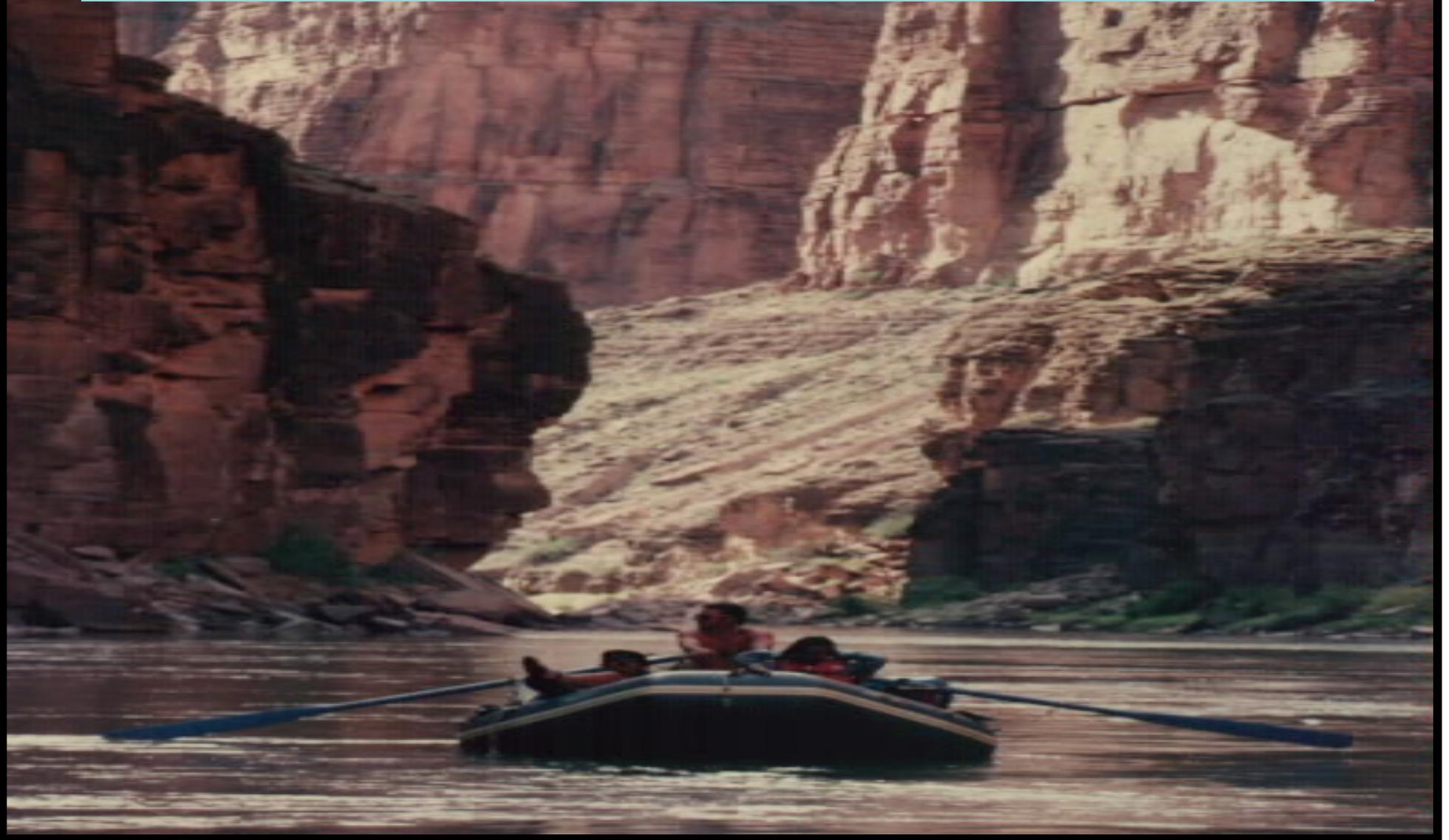
- Over 22,000 people rafted on the Colorado River through GCNP in 2001
- An estimated \$21 million of regional expenditures were generated by these boaters
- Including indirect and induced effects, potential total impact of \$23 million (in 1999 dollars)
- Supported approximately 394 jobs in the region



# Conclusions

- Commercial and Non-commercial comparison – gray area for many reasons
- Both sectors affected over 220 industries and is an important industry to northern Arizona.
- The adverse, and constraining socioeconomic impacts of outdoor recreation on rural areas also need to be examined → Promote resilient communities.

# **Economic Impacts of the 2000 Low Summer Steady Flow of the Colorado River**



# The 2000 LSSF

- Dam-controlled releases varied from 3,000 cfs to 40,000 cfs, with typical fluctuations ranging between 10,000 cfs and 25,000 cfs.
- In the summer of water year 2000, the Bureau of Reclamation conducted an experimental low summer steady flow (LSSF) of 8,000 cfs with two four-day spike flows of 31,000 cfs.

# The objectives are:

- To estimate the economic impacts of the LSSF on private whitewater boaters, anglers, and river concessionaires;
- To estimate their extended effects on the regional economy;
- To understand the economic impacts on recreation associated with different flow levels of the Colorado River;

# Methods



# Data Collection/Analysis

- All the boating and angling concessionaires operating in the Grand Canyon and Lee's Ferry received economic impact surveys



- Personal interviews with:
  - the Grand Canyon Private Boaters Association
  - the Grand Canyon River Outfitters Association.
  - private anglers and angling guides located in Lee's Ferry.
  - Grand Canyon National Park officials and Grand Canyon River Guides.

IMPLAN



# Results



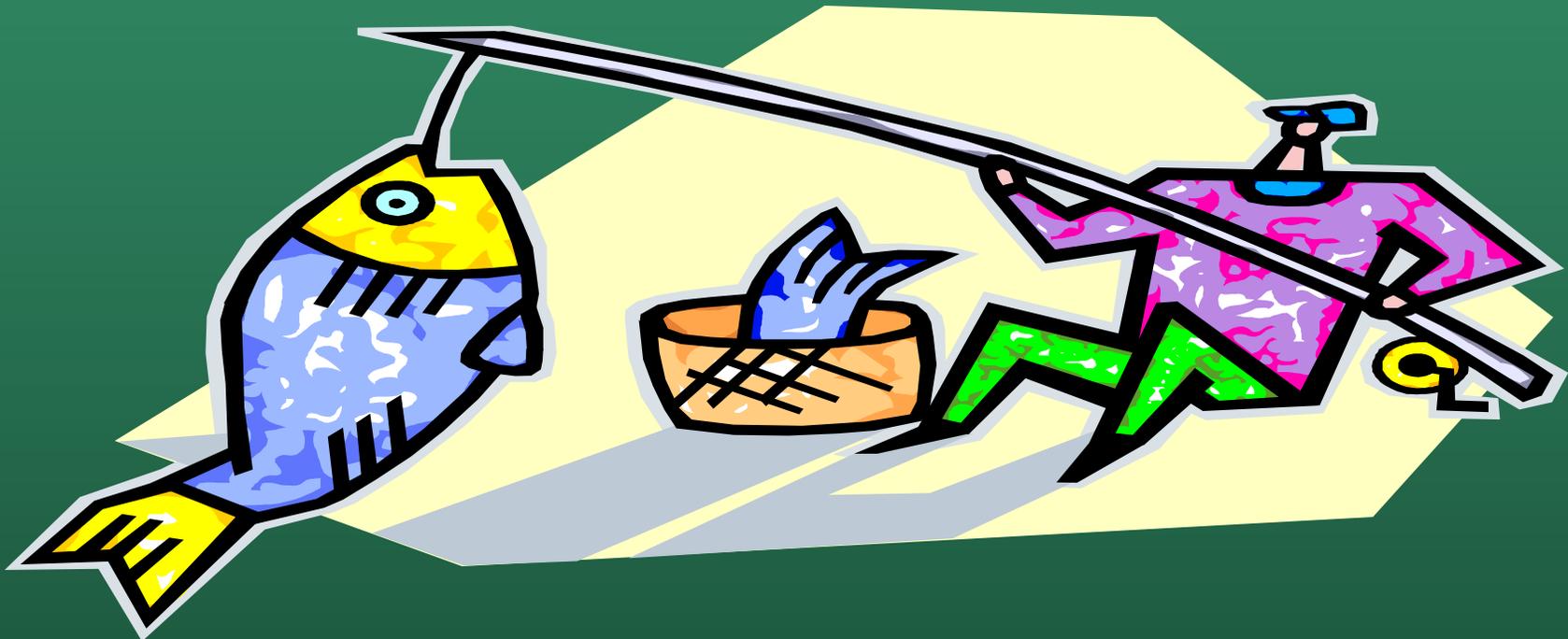
# Rafting concessionaires

- The reported costs (\$70,000): boat and motor damage caused by newly exposed rocks, raft retrieval efforts, increased fuel costs, and personal injuries as well as longer “on-river” times, added stress to trip leaders and crews.
- Three major search and rescue operations, which cost the national park approximately \$30,000.
- The overall volume of trips remained unchanged.



# Angling concessionaires

- A slight increase in the number of guided trips and revenue
- The reported costs (\$33,000): loss in guiding services during the spike flows
- Does the LSSF improve the overall fishing opportunities?  
Tamarisk?



# Private anglers and boaters

- A few equipment-damaging incidents < Increased interest in lower flows
- Private boaters are better suited for lower flows.



# IMPLAN Analysis

**Output Impact** of \$88,000 expenditure loss  
in recreation sector (Coconino county)

Indirect effects = \$15,368

Induced Effects = \$18,812

Total Effects = \$117,706

\* In 1998 dollars

# Conclusions

Short-term economic effects of the LSSF were analyzed. The long-term effects are likely to be different.

The economic impacts of the LSSF were not significant and can be mitigated by advanced planning.

# Overall conclusions

- Rafting in the Colorado river is an important industry
- Economic impacts = economic benefits.
- The 2000 LSSF had some negative impacts on rafting and angling concessionaries but the subsequent regional economic impacts was not significant.
- Regional economic Impacts should be evaluated within the social and economic contexts of the affected area.